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CLERK U.S. DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

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EMC

14 **UNITED STATES DISTRICT COURT**

15 **NORTHERN DISTRICT OF CALIFORNIA**

16 JEMS SOFTWARE AND CONSULTING,
17 INC., on behalf of
18 itself and all others similarly situated,

19 Plaintiff,

20 vs.

21 LEXAR MEDIA, INC.;
22 HITACHI AMERICA, LTD.;
HITACHI, LTD.;
23 HITACHI ELECTRONIC DEVICES USA;
24 HYNIX SEMICONDUCTOR AMERICA,
INC.; HYNIX SEMICONDUCTOR, INC.;
25 MICRON TECHNOLOGY, INC.;
MICRON SEMICONDUCTOR
26 PRODUCTS, INC.;
27 MITSUBISHI ELECTRIC CORPORATION;
MITSUBISHI ELECTRIC AND
28 ELECTRONICS USA, INC.;
MOSEL VITELIC CORPORATION;

Case No.:

CLASS ACTION COMPLAINT

DEMAND FOR JURY TRIAL

BY FAX

CLASS ACTION COMPLAINT

1 MOSEL VITELIC, INC;
 2 RENESAS TECHNOLOGY
 CORPORATION; RENESAS
 3 TECHNOLOGY AMERICA, INC.;
 SAMSUNG SEMICONDUCTOR, INC.;
 4 SAMSUNG ELECTRONICS COMPANY,
 LTD.; SANDISK CORPORATION;
 5 STMICROELECTRONICS N.V.;
 STMICROELECTRONICS, INC.;
 6 TOSHIBA CORPORATION;
 TOSHIBA AMERICA, INC.; TOSHIBA
 7 AMERICA ELECTRONIC
 COMPONENTS, INC.,
 8 WINBOND ELECTRONICS
 CORPORATION; WINBOND
 9 ELECTRONICS CORPORATION
 10 AMERICA, INC.

11 Defendants.

13 **I. INTRODUCTION**

14 1. Plaintiff JEMS Software and Consulting, Inc. brings this lawsuit as a Class Action
 15 on behalf of individuals and entities who purchased Flash Memory directly from Defendants,
 16 their subsidiaries, agents, or co-conspirators during the period from at least January 1, 1999
 17 through the present ("Class Period").

18 2. The term "Flash Memory" refers to all types of Flash Memory sold during the
 19 Class Period, including AND, Not AND ("NAND"), and Not OR ("NOR") technologies. For
 20 purposes of this complaint, Flash Memory excludes all types of static random access memory
 21 ("SRAM") or dynamic random access memory ("DRAM") sold during the Class Period.

22 3. Flash Memory is a non-volatile computer memory that can be electronically
 23 erased and reprogrammed. It is primarily used in memory cards, but it is also found in digital
 24 audio players, digital cameras, DVD players, mobile phones and video game consoles. Flash
 25 Memory is the most popular form of computer memory, and costs far less than competing forms
 26 of memory. As a result, it has become the dominant technology wherever a significant amount
 27 of non-volatile, solid-state storage is needed. It is also a stand alone product.

4. Defendants participated in cartel-like behavior to fix the price of Flash Memory. Because of Defendants' unlawful conduct and conspiracy, Plaintiff and other members of the Class paid artificially inflated prices for Flash Memory. Plaintiff and other members of the Class who purchased Flash Memory have been damaged by Defendants' illegal actions.

II. JURISDICTION AND VENUE

5. This complaint is filed pursuant to §16 of the Clayton Act, 15 U.S.C. § 26, and § 1 of the Sherman Act, 15 U.S.C. §1. Plaintiff and the Class also seek to recover the costs of suit, including reasonable attorneys' fees, for the injuries suffered as a result of Defendants' violations of federal antitrust law.

6. This Court's jurisdiction is based on 28 U.S.C. §§1331 and 1337. The Court also has jurisdiction under 28 U.S.C. §1332 because the amount in controversy for the Class exceeds \$5,000,000 and there are members of the Class who are citizens of a different state than the defendants.

7. Venue is proper in this Judicial District given that Defendants reside, transact business, or are found within this District, and a substantial part of the events giving rise to the claims arose in the District.

III. INTRADISTRICT ASSIGNMENT

8. Pursuant to Civil L.R. 3-2(d) and Civil L.R. 3-5(b), Plaintiff states that assignment to the San Francisco Division of this Court is appropriate because it arises in San Francisco County.

IV. PARTIES

A. Plaintiff

9. JEMS Software and Consulting, Inc. is a corporation with its principle place of business in Trenton, New Jersey. Plaintiff purchased Flash Memory directly from one or more of the Defendants during the Class Period at artificially high prices as a result of the Defendants' illegal conspiracy and unlawful acts.

1 **B. Defendants**

2 10. Defendant **HYNIX SEMICONDUCTOR AMERICA, INC.** is a wholly owned
3 and controlled subsidiary of Defendant Hynix Semiconductor, Inc. with its principal place of
4 business at 3101 North First Street, San Jose, California, 95134. Hynix Semiconductor America,
5 Inc. is a California corporation. During the Class Period, Hynix Semiconductor America, Inc.
6 sold and distributed Flash Memory to customers throughout the United States. Hynix
7 Semiconductor, Inc. and Hynix Semiconductor America, Inc. are referred to collectively herein
8 as "Hynix."

9 11. Defendant **HYNIX SEMICONDUCTOR, INC.** is a business entity organized
10 under the laws of South Korea, with its principal place of business at SAN 136-1, Ami-Ri Bubal-
11 eub, Icheon-si, Kyoungki-do, Korea, 467-701. During the Class Period, Hynix Semiconductor,
12 Inc. manufactured, sold and distributed Flash Memory to customers throughout the United
13 States.

14 12. Defendant **HITACHI AMERICA, LTD** is incorporated in the State of New
15 York with its principle place of business at 50 Prospect Ave, Tarrytown, New York 10591. It is
16 a wholly owned subsidiary of Defendant Hitachi Ltd. During the Class Period, Hitachi America
17 Ltd. sold and distributed Flash Memory to customers throughout the United States.

18 13. Defendant **HITACHI, LTD.** is a business entity organized under the laws of
19 Japan with its principal place of business at 6-1 Marunoyuchi Center Building 13F Chiyodaku,
20 Tokyo, 100-8220, Japan. During the Class Period Hitachi, Ltd. sold and distributed Flash
21 Memory to customers throughout the United States.

22 14. Defendant **MICRON TECHNOLOGY, INC.** is a Delaware Corporation with its
23 principal place of business at 8000 South Federal Way, Boise, Idaho, 83716. During the Class
24 Period, Micron Technology, Inc. manufactured, sold and distributed Flash Memory to customers
25 throughout the United States.

26 15. Defendant **MICRON SEMICONDUCTOR PRODUCTS, INC.** is a corporation
27 formed under the laws of Delaware. Micron Semiconductor Products, Inc. is a wholly owned
28 and controlled subsidiary of Defendant Micron Technology, Inc. with its principal place of

1 business at 8000 South Federal Way, Boise, Idaho, 83716. During the Class Period, Micron
2 Semiconductor Products, Inc. sold and distributed Flash Memory to customers throughout the
3 United States.

4 16. Defendant **LEXAR MEDIA, INC.** is a Delaware corporation with its principal
5 place of business at 47300 Bayside Parkway, Fremont, California, 94538. During the Class
6 Period, Lexar Media, Inc. sold and distributed Flash Memory to customers throughout the United
7 States. Lexar Media was bought by Micron Technology, Inc. Lexar Media, Inc., Micron
8 Technology, Inc., and Micron Semiconductor Products, Inc. are referred to collectively herein as
9 “Micron.”

10 17. Defendant **MITSUBISHI ELECTRIC CORPORATION**, is a business entity
11 organized under the laws of Japan, with its principal place of business at Tokyo Building 2-7-3,
12 Marunouchi, Chiyoda-ku, Tokyo, 100-8310, Japan. During the Class Period, Mitsubishi Electric
13 Corporation sold and distributed Flash Memory to customers throughout the United States.

14 18. Defendant **MITSUBISHI ELECTRIC AND ELECTRONICS USA, INC.**, is
15 incorporated in the State of Delaware with its principal place of business at 500 Corporate Wood
16 Parkway, Vernon Hills, Illinois 60061. It is a wholly owned subsidiary of Mitsubishi Electric
17 Corporation. During the Class Period, Mitsubishi Electric and Electronics USA, Inc. sold and
18 distributed Flash Memory to customers throughout the United States. Defendant Mitsubishi
19 Electric Corporation and Mitsubishi Electric and Electronics USA, Inc. are referred to
20 collectively herein as “Mitsubishi.”

21 19. Defendant **MOSEL VITELIC CORPORATION** is incorporated in the State of
22 California with its principal place of business at 3910 North First Street, San Jose, California
23 95134. It is a wholly owned subsidiary of Mosel Vitelic Inc. During the Class Period, Mosel
24 Vitelic Corporation sold and distributed Flash Memory to customers throughout the United
25 States.

26 20. Defendant **MOSEL VITELIC, INC.** is a business entity organized under the
27 laws of Taiwan with its principal place of business at No. 19 Li Hsin Road, Science-Based
28 Industrial Park, Hsinchu, Taiwan. During the Class Period, Mosel Vitelic, Inc. sold and

1 distributed Flash Memory to customers throughout the United States. Defendant Mosel Vitelic
2 Corporation and Mosel Vitelic, Inc. are referred to collectively herein as "Mosel."

3 21. Defendant **RENESAS TECHNOLOGY CORPORATION** is a business entity
4 organized under the laws of Japan with its principal place of business at Marunouchi Building, 4-
5 1, Marunouchi 2-chrome, Chiyoda-ku, Tokyo, 100-6334, Japan. Renesas Technology
6 Corporation was established on or about April 1, 2003 as a joint venture of Hitachi and
7 Mitsubishi. During the Class Period, Renesas Technology Corporation sold and distributed
8 Flash Memory to customers throughout the United States.

9 22. Defendant **RENESAS TECHNOLOGY AMERICA, INC.** is a Delaware
10 corporation and is a wholly owned and controlled subsidiary of Renesas Technology Corporation
11 with its principal place of business at 450 Holger Way, San Jose, California, 95134-1368.
12 During the Class Period, Renesas Technology America, Inc. sold and distributed Flash Memory
13 to customers throughout the United States. Defendants Renesas Technology Corporation and
14 Renesas Technology America, Inc. are referred to collectively herein as "Renesas."

15 23. Defendant **SAMSUNG SEMICONDUCTOR, INC.** is a California corporation
16 and is a wholly owned and controlled subsidiary of Samsung Electronics Company, Ltd. with its
17 principal place of business at 3655 North First Street, San Jose, California, 95134. During the
18 Class Period, Samsung Semiconductor, Inc. sold and distributed Flash Memory to customers
19 throughout the United States.

20 24. Defendant **SAMSUNG ELECTRONICS COMPANY, LTD.** is a business entity
21 organized under the laws of South Korea, with its principal place of business at Samsung Main
22 Building, 250-2 ga, Taepyung-ro, Chung-gu, Seoul, Korea. During the Class Period, Samsung
23 Electronics Company, Ltd. sold and distributed Flash Memory to customers throughout the
24 United States. Samsung Electronics Company, Ltd. and Samsung Semiconductor, Inc. are
25 referred to collectively herein as "Samsung."

26 25. Defendant **SANDISK CORPORATION** is a Delaware Corporation with its
27 principal place of business at 601 McCarthy Boulevard, Milpitas, California, 95035. During the
28

1 Class Period, SanDisk Corporation sold and distributed Flash Memory to customers throughout
2 the United States.

3 26. Defendant **STMICROELECTRONICS N.V.** is a business entity organized
4 under the laws of the Netherlands, with its principal place of business at 39, Chemin du Champ
5 des Filles, C. P. 21, CH 1228 Plan-Les-Ouates, Geneva, Switzerland. During the Class Period,
6 ST Microelectronics N.V. sold and distributed Flash Memory to customers throughout the
7 United States.

8 27. Defendant **STMICROELECTRONICS, INC.** is a Delaware corporation and is a
9 wholly owned and controlled subsidiary of ST Microelectronics N.V. with its principal place of
10 business located at 1310 Electronics Dr., Carrollton, TX, 75006-7005. During the Class Period,
11 ST Microelectronics, Inc. sold and distributed Flash Memory to customers throughout the United
12 States. ST Microelectronics N.V. and ST Microelectronics, Inc. are referred to collectively
13 herein as “STMicroelectronics.”

14 28. Defendant **TOSHIBA CORPORATION** is a business entity organized under the
15 laws of Japan, with its principal place of business at 1-1 Shibaura, 1-chrome Minato-ku, Tokyo,
16 105-8001, Japan. During the Class Period, Toshiba Corporation sold and distributed Flash
17 Memory to customers throughout the United States.

18 29. Defendant **TOSHIBA AMERICA CORPORATION** is a Delaware corporation
19 and is a wholly owned and controlled subsidiary of Toshiba Corporation with its principal place
20 of business at 1251 Avenue of the Americas, Suite 4110, New York, New York, 10020. During
21 the Class Period, Toshiba America Corporation manufactured, sold and distributed Flash
22 Memory to customers throughout the United States.

23 30. Defendant **TOSHIBA AMERICA ELECTRONIC COMPONENTS, INC.** is a
24 California corporation and is a wholly owned and controlled subsidiary of Toshiba Corporation
25 with its principal place of business located at 19900 MacArthur Boulevard, Suite 400, Irvine,
26 California, 92612. During the Class Period, Toshiba America Electronic Components, Inc. sold
27 and distributed Flash Memory to customers throughout the United States. Toshiba Corporation,
28

1 Toshiba America Corporation, and Toshiba America Electronic Components, Inc. are referred to
2 collectively herein as "Toshiba."

3 31. Defendant **WINBOND ELECTRONICS CORPORATION** is a business entity
4 organized under the laws of Taiwan with its principal place of business at No. 4 Creation Road 3,
5 Science-Based Industrial Park, Hsinchu, 300, Taiwan. During the Class Period, Winbond
6 Electronics Corporation sold and distributed Flash Memory to customers throughout the United
7 States.

8 32. Defendant **WINBOND ELECTRONICS CORPORATION AMERICA, INC.**
9 is incorporated in the State of Delaware with its principal place of business at 2727 North First
10 Street, San Jose, California 95134. It is a wholly owned subsidiary of Winbond Electronics
11 Corporation. During the Class Period, Winbond Electronics Corporation America Inc. sold and
12 distributed Flash Memory to customers throughout the United States. Defendant Winbond
13 Electronics Corporation and Winbond Electronics Corporation America, Inc. are referred to
14 collectively herein as "Winbond."

15 **C. Agents And Co-Conspirators**

16 33. At all relevant times, each Defendant acted as the agent or joint venturer of or for
17 other Defendants with respect to the acts, violations and common course of conduct alleged
18 herein. Each Defendant ratified and/or authorized the wrongful acts of each of the Defendants.

19 34. Defendants, along with certain other corporations, entities, and persons not named
20 as Defendants are co-conspirators in the violations and cartel behavior alleged in this Complaint.
21 These co-conspirators have performed acts and made statements in furtherance of the antitrust
22 violations and conspiracies alleged herein.

23 35. Defendants, and each of them, are individually sued as participants and as aiders
24 and abettors in the improper acts, plans, schemes, and transactions that are the subject of this
25 complaint.

V. CLASS ACTION ALLEGATIONS

36. Plaintiff brings this action on behalf of itself and all others similarly situated (“the Class”) in accordance with Federal Rules of Civil Procedure 23(a), 23(b)(2), and 23(b)(3). The Class is defined as follows:

All persons and entities in the United States who, from January 1, 1999 through the present, purchased Flash Memory directly from one or more of the Defendants. Excluded from this Class are the Defendants; their parents, predecessors, successors, subsidiaries, units, divisions, employees, officers, directors; co-conspirators and any and all judges and justices (and members of their immediate families) assigned to hear any aspect of this case.

37. This action is appropriate for class treatment under Federal Rule of Civil Procedure 23 because:

- a. The Class is ascertainable and there is a well-defined community of interest among the members of the Class;
- b. Plaintiff is informed and believes, and thus alleges, that based on the nature of the trade and commerce involved and the number of direct purchasers of Flash Memory, there are hundreds and possibly thousands, of class members. As a result, joinder of Class members is not practicable;
- c. Plaintiff’s claims are typical of the Class members’ claims. Plaintiff purchased Flash Memory in the United States, and therefore Plaintiff’s claims arise from the same conduct giving rise to the Class members’ claims. Similarly, the relief sought is common to the Class;
- d. The following are common questions of law and fact among Plaintiff and the Class:
 - i. whether Defendants formed and operated a combination or conspiracy to fix, raise, maintain or stabilize the prices of Flash Memory;
 - ii. whether Defendants’ combination or conspiracy caused Flash Memory prices to be higher than they would have been in the absence of Defendants’ conduct;

1 iii. whether Defendants' conduct caused injury to the business or property
2 of Plaintiff and the members of the Class;

3 iv. the appropriate measure of damages suffered by the Class;

4 v. the operative time period of Defendants' combination or conspiracy;

5 vi. the identities of the co-conspirators;

6 vii. whether an injunction is necessary to cause Defendants not to engage
7 in illegal acts;

8 viii. whether Defendants' conduct constitutes a violation of § 1 of the
9 Sherman Act, 15 U.S.C. §1;

10 ix. whether Defendants engaged in concealment of their conspiracy from
11 the Plaintiff and other Class members;

12 e. These and other questions of law and fact are common to the members of the
13 Class and therefore predominate over any questions affecting only individual
14 members of the Class;

15 f. Plaintiff will fairly and adequately protect the interests of the Class and
16 Plaintiff has no interests that are antagonistic to other members of the Class;

17 g. Plaintiff has retained counsel competent and experienced in the prosecution of
18 antitrust litigation and class actions to represent itself and the Class;

19 h. A class action is superior to other available methods for the fair and efficient
20 adjudication of this dispute. Individual joinder of all damaged Class members
21 is impractical. Further, because the damages suffered by individual Class
22 members are relatively small, it would not be feasible for Class members to
23 vindicate their claims unless Rule 23's class action procedures are applied.
24 Individual litigation of these claims would be costly and could create the risk
25 of inconsistent or contradictory judgments and will also greatly magnify the
26 delay and expense to all parties and to the judicial system. The use of the
27 class action procedure presents many less case management difficulties. A
28 single adjudication, economies of scale, and the supervision by a single court

are salutary goals which may be achieved through use of the class mechanism;
and

- i. Unless the class procedure is used, Defendants will be unjustly enriched
because they will be able to retain the benefits of their wrongful conduct.

VI. MARKET AND COMMERCE

38. Throughout the Class Period, Defendants and their co-conspirators engaged in the business of marketing and selling Flash Memory throughout the United States. During the Class Period of January 1999 through the present, total sales of Flash Memory were in the billions of dollars.

39. The market for the manufacture and sale of Flash Memory is conducive to the type of collusive activity alleged here. There are significant manufacturing and technological barriers to entry in the Flash Memory industry. A state-of-the-art fabrication plant can cost upwards of \$2 billion and changing technology requires constant research and development investment. See, e.g., Yun-Hee Kim, StreetInsider.com, 8-27-07 (Interview: "SanDisk, Hynix Plan New Flash Memory Plant"), (<http://www.streetinsider.com/Basic+Content/INTERVIEW:+SanDisk,Hynix+Plan+New+Flash+Memory+Plant/2819007.html>).

40. The Flash Memory market is oligopolistic in nature. Samsung is the clear market leader followed by Toshiba, Hynix, Renesas, and Micron.

41. The market for Flash Memory is large, with worldwide revenues in excess of \$12 billion in 2006, and growing.

VII. FLASH MEMORY MARKET

42. The market for the manufacture and sale of Flash Memory is subject to high manufacturing and technological barriers to entry. Efficient fabrication plants are large and costly. Flash Memory is also subject to technological advances, so that firms within the industry must undertake significant research and development expenses.

43. Further, Flash Memory is a homogeneous product sold by Defendants and purchased by Plaintiff and members of the Class primarily on the basis of price.

1 **VIII. FACTUAL BACKGROUND**

2 **A. Flash Memory**

3 44. Flash Memory is a type of electronic memory chip with a read-only memory
4 that retains its data when the power is turned off and that can be electronically erased and
5 reprogrammed without being removed from the circuit board. Flash Memory is non-volatile,
6 meaning that it does not need continuous power to maintain the information stored for the chip.
7 Flash Memory is produced in the form of an integrated chip which is used in a variety of
8 applications, including memory cards, digital audio players, DVD players, digital cameras,
9 mobile phones, video game consoles, USB storage devices, fax machines and personal
10 computers. Some examples of Flash Memory are:

- 11 a. a computer's BIOS chip,
- 12 b. CompactFlash (most often found in digital cameras),
- 13 c. SmartMedia (most often found in digital cameras),
- 14 d. Memory Stick (most often found in digital cameras),
- 15 e. PCMCIA Type I and Type II memory cards ,
- 16 f. memory cards for video game consoles,
- 17 g. iPod and Shuffle music players use NAND Flash Memory chips to store
- 18 songs,
- 19 h. Apple's iPhone.

20 45. Flash memory is also a stand-alone product. It is not always subsumed within, or
21 a part, of another product.

22 **B. Applications**

23 46. Examples of non-volatile memory include read only memory, Flash Memory,
24 hard disks, floppy disk drives, magnetic tape and optical drives. Non-Volatile Memory is
25 usually used for the task of secondary storage or long-term persistent storage. The most widely
26 used primary storage is a volatile form of RAM, meaning when the computer is shut down,
27 anything contained in RAM is lost.

1 47. Flash Memory has long been used to make thumb-size USB drives popular for
2 transferring data between home and office. What is new is that Flash memory is just now
3 becoming cheap enough that flash chips can be used as the innards of solid-state drives to replace
4 traditional disk drives, which provide long-term storage on computers. This new breed of solid-
5 state drives has the same housings and connections as hard-disk drives. Computers will not
6 know the difference, except that the solid-state drive will be lighter, quieter, more energy
7 efficient and, absent moving parts, more reliable.

8 48. Unlike hard-disk drives, Flash Memory handles data all electronically without the
9 use of motors. A traditional disk drive takes time to spin around and position itself so that the
10 needed data are underneath the drive "head" that does the reading and writing. There is no such
11 delay with flash, because it's all nonmoving, solid-state electronics. The minute or so needed to
12 boot up from a hard drive can thus be cut up to half if Flash Memory is used instead. Flash
13 Memory PCs are also lighter. Samsung Electronics Co. has developed a Flash Memory storage
14 device that comes in at 15 grams, 25% the weight of a hard drive.

15 **C. Types of Flash Memory**

16 49. Currently, NOR and NAND are the two main types of nonvolatile memory chips
17 used in electronic devices to retain data when power is switched off. NOR chips excel at reading
18 data at high speed, making them suitable for running software in cell phones, while NAND chips
19 - widely used in digital cameras and music players - write data at high speed and generally have
20 greater storage capacity.

21 50. NOR and NAND are Flash Memory chips constructed of either NOR or NAND
22 logic gates. Electronic logic gates are a collection of transistors and resistors that perform a
23 logical operation on one or more logic inputs and produce a single logic output. The logic
24 normally performed is boolean logic and is commonly found in digital circuits. Transistors make
25 up logic gates. Logic gates make up circuits. Circuits make up electronic systems. NOR chips
26 function like a computer's main memory, while NAND works like a hard disk. An example
27 would be, in a digital camera, NOR Flash Memory contains the camera's internal software, while
28 NAND Flash Memory is used to store the pictures.

1 51. A logic gate is an elementary building block of a digital circuit. There are seven
2 logic gates: NAND, NOR, AND, OR, NOT, XOR, and XNOR. Most logic gates have two input
3 terminals and one output terminal. Every terminal is in one of two binary conditions that is
4 represented by different voltage.

5 52. NOR Flash Memory was developed by Intel in 1988. NOR Flash Memory
6 supports one-byte random access and “execute in place” (XIP), which means machine
7 instructions can be obtained and executed directly from Flash Memory without going into main
8 memory (DRAM) first as is required with NAND Flash Memory. NOR Flash Memory has a
9 lifespan of about 100K write cycles. As with all Flash Memory, the cells must be erased in large
10 blocks before being written. Erasing a block of typically 16KB takes several seconds, but
11 reading and writing one byte at a time is very fast. NAND Flash Memory was developed by
12 Toshiba a year after Intel’s NOR Flash Memory. NAND Flash Memory functions like a disk
13 rather than memory. Less expensive than NOR, NAND Flash Memory can be rewritten up to a
14 million times, and erasing and writing NAND is faster than NOR.

15 53. AND is another stand alone NAND-like chip. Hitachi and Mitsubishi
16 manufactured, sold, and distributed AND. Renesas, a product of the merger between Hitachi and
17 Mitsubishi, also produces AND and AG-AND chips.

18 **D. Genesis of Flash Memory Conspiracy**

19 54. The Flash Memory cartel activities are facilitated through numerous trade
20 association activities. All of the Defendants are members of the Joint Electronic Device
21 Engineering Council (“JEDEC”) Solid State Technology Association, a standard-setting
22 organization which over the years has held dozens of general membership meetings and regional
23 meetings across the world. In addition, Hynix and Micron are among the founding members of
24 the Open NAND Flash Interface group, the purpose of which is to meet and discuss standards
25 and production of NAND Flash Memory products. Among the other members of the ONFI
26 group are Hitachi & Winbond.

27 a. Defendants had ample opportunities to meet over the years at various
28 electronics conventions and other industry activities and expos across the

1 world to conduct cartel activities. For example, Hitachi, Lexar (now part of
2 Micron), Mitsubishi, Renesas, Samsung, Toshiba and Winbond, or their
3 affiliates, are members of the CompactFlash Association which was founded
4 in 1995 to promote various forms of flash memory. Over the years,
5 CompactFlash members have met in Japan, Germany, the United Kingdom
6 and the United States.

7 b. Members first got together in New Orleans in February 1997 to meet and give
8 demonstrations of their products at PMA 97. PMA stands for Photo
9 Marketing Association, which annually conducts an international photo
10 industry expo. On March 10-11, 1997, CompactFlash held its first general
11 meeting, with product demonstrations and press briefings, in London.

12 c. Other CompactFlash meetings and presentations were held:

- 13 • January 8, 1998, Consumer Electronics Show in Las Vegas.
- 14 • February 10, 1998, PMA 98 in New Orleans.
- 15 • September 16, 1998, Photokina 98 in Cologne, Germany.
- 16 • September 30, 1998, World PC Expo in Tokyo.
- 17 • January 7, 1999, International Consumer Electronics Show,
18 1999 in Las Vegas.
- 19 • February 18, 1999, PMA 1999 in Las Vegas.
- 20 • September 7, 1999, World PC Expo 99 in Tokyo.
- 21 • December 27, 1999, Consumer Electronics Show 2000 in
22 Las Vegas.
- 23 • September 20, 2000, Photokina 2000 in Koln, Germany.
- 24 • October 17, 2000, World PC Expo 2000 in Tokyo. At this
25 event Compact Flash also conducted “a free Host Develop
26 Seminary” at Tokyo Fashion Town, according to a news
27 release. “Presentations will be in Japanese and handouts
28 will also be in Japanese,” the release said.

- 1 • January 6, 2001, Consumer Electronics Show 2001 in Las
- 2 Vegas.
- 3 • February 11, 2001, PMA 2001 in Orlando, Florida.
- 4 • January 8, 2002, International Consumers Electronics Show
- 5 2002 in Las Vegas.
- 6 • September 25, 2002, Photokina 2002 in Koln Germany.
- 7 • October 16, 2002, World PC Expo in Tokyo.
- 8 • September 17, 2003, World PC Expo in Tokyo.
- 9 • January 5, 2006, International Consumers Electronics Show
- 10 2006 in Las Vegas. The CompactFlash Association and 60
- 11 of its members met at the show to celebrate the 10th
- 12 anniversary of the founding of the association and
- 13 presented exhibits, according to a news release.

14 55. The September 7, 1999 World PC Expo '99 in Tokyo was of special significance.

15 The CompactFlash Association had 50 members exhibiting at the Expo, a record number for an

16 international show. In addition to special meetings, dinners and other activities at the Expo

17 (which attracted 350,000 corporate employees and IT professionals) that could translate into

18 cartel actions, the sponsor of the Expo said in a news release: "Networking opportunities will

19 also be promoted for overseas exhibiting companies by holding an International Business

20 Partnership Party where company representatives can meet with Japanese buyers and an

21 International Business Seminar that will examine IT industry/market trends in China, India and

22 Taiwan." The release also said: "WORLD PC EXPO has gained a reputation as a gateway to the

23 world's second largest market in IT and as a place where the alliances and OEM partners from

24 the information home appliance age assembly for Asia's largest IT showcase...Most overseas

25 exhibiting companies see the EXPO as a chance to meet potential business partners in Asian

26 markets, including the vast emerging market in China."

27 56. The structure of the market allowed Defendants to maintain and enforce their

28 cartel, using methods such as price signaling. On March 20, 2006, Hynix warned investors that

1 the prices of NAND Flash Memory could fall as much as 50% for the year. The next day,
 2 Samsung publicly announced that prices would recover and stabilize. As of August 2006, Flash
 3 Memory prices had stabilized, in part, as a result of reduced inventory from manufacturers.
 4 “Apple to spur NAND Flash Market, firm says,” Electronic News, August 9, 2006.

5 57. One commentator noted the pervasiveness of cartel activity among the Defendants
 6 and others within the overall semiconductor industry - “If the DOJ wanted to, it could just go
 7 down every line in the semiconductor industry and find the same issue,” said Gartner, Inc.
 8 analyst Richard Gordon. ‘That’s because there are a relatively few number of suppliers in the
 9 chip industry and an open flow of communication between competitors and customers, who may
 10 not define price fixing the same way the DOJ does,’ he said.”
 11 ([http://blog.tmcnet.com/regulations/enforcement/doj-subpoenas-go-to-amd-nvidia-antitrust-](http://blog.tmcnet.com/regulations/enforcement/doj-subpoenas-go-to-amd-nvidia-antitrust-violations-eyed.asp)
 12 [violations-eyed.asp](http://blog.tmcnet.com/regulations/enforcement/doj-subpoenas-go-to-amd-nvidia-antitrust-violations-eyed.asp)).

13 58. Certain websites, such as DRAMeXchange (found at
 14 <http://www.dramexchange.com>), allow Defendants to track each other’s Flash Memory prices as
 15 well.

16 59. Several of the Defendants Headquarters are located within blocks of each other on
 17 the same street in San Jose, California. This proximity provides unlimited opportunities for
 18 those Defendants to participate in Flash Memory cartel activities.

- 19 • Hynix Semiconductor America, Inc., 3101 North First Street
- 20 • Mosel Vitelic Corporation, 3910 North First Street
- 21 • Samsung Semiconductor, Inc., 3655 North First Street
- 22 • Winbond Electronics Corporation America, Inc. 2727 North First Street.
- 23 • Another Defendant in San Jose, Renesas Technology America, Inc., is located
 24 nearby at 450 Holger Way.

25 60. Additionally, Defendants Mosel Vitelic, Inc and Winbond Electronic Corporation
 26 are located in the same technology office park, Science-Based Industrial Park, in Hsinchu,
 27 Taiwan.

1 61. All of the above opportunities to exchange and monitor Flash Memory pricing
2 information allowed Defendants to communicate their intended prices for Flash Memory to each
3 other throughout the Class Period. These conversations were not simply the sharing of publicly
4 available information. Rather, Defendants communicated with each other prior to price moves
5 and collected competitive information similar to the pattern seen in the DRAM and SRAM
6 markets. This information sharing was intended to, and in fact did, cause the price of Flash
7 Memory to be stabilized and/or artificially inflated in violation of antitrust laws.

8 62. There is also a great deal of cross-licensing and many cooperative arrangements
9 in the Flash Memory industry, creating additional opportunities for collusive activity. By way of
10 example, SanDisk announced in a press release dated 8/19/2002 that it had signed cross license
11 and supply agreements concerning flash memory technology with Samsung.

12 63. Other cooperative arrangements include joint ventures, which are common
13 throughout the industry. For example, in March of this year, SanDisk announced that it had
14 signed an agreement with Hynix for a joint venture to manufacture memory components and sell
15 NAND memory system solutions. SanDisk 10-Q filed on 8-07-07. At about the same time,
16 SanDisk also entered into a cross-licensing agreement with Hynix that covers NAND flash
17 memory products.

18 (<http://www.streetinsider.com/Basic+Content/INTERVIEW:+SanDisk,Hynix+Plan+New+Flash>
19 [+Memory+Plant/2819007.html](http://www.streetinsider.com/Basic+Content/INTERVIEW:+SanDisk,Hynix+Plan+New+Flash)). SanDisk has also had long-standing joint ventures with
20 Toshiba during the Class Period; see, e.g., 2006 Annual Report at 8 (“We and Toshiba have
21 entered into several business ventures . . . With these ventures, we and Toshiba collaborate in the
22 development and manufacture of NAND flash memory products.”). STMicroelectronics had
23 also entered into a joint venture agreement with Hynix in 2004 for the building of a front-end
24 memory plant in China, and in 2001, STMicroelectronics had entered into a joint venture with
25 Renesas to develop and license RISC processors. STMicroelectronics Form 20-F, March 14,
26 2007.

27 64. During the Class Period, Defendants’ collusive behavior artificially inflated the
28 price of Flash Memory. Defendants participated in cartel-like behavior to fix the prices of these

1 products. Because of Defendants' unlawful conduct and conspiracy, Plaintiff and other members
2 of the Class paid artificially inflated prices for Flash Memory and, therefore, have been damaged
3 by Defendants' illegal actions.

4 **E. Defendants Set Flash Memory Prices At Supra-Competitive Levels.**

5 65. As a result of Defendants' cartel like activity, prices for Flash Memory have been
6 maintained at supra-competitive levels from at least 1999 through the present. Prior to 1999, the
7 average selling price for all Flash Memory was at a decline. Beginning in 2000, and continuing
8 through the first quarter of 2001, the aggregate average price of Flash Memory stabilized, then
9 increased.

10 66. While Flash Memory prices began to somewhat decline at the end of 2001, the
11 cartel created by Defendants operated to palliate those declines so that prices were still at supra-
12 competitive levels. Defendants' collusive activity still continues and has had the effect of
13 keeping prices at supra-competitive levels.

14 **F. The DOJ Is Currently Investigating The Flash Memory Market, As Well As**
15 **The Market For Other Memory Chips.**

16 67. The trend in the average prices of Flash Memory is similar to a contemporaneous
17 price movement in the DRAM market. The pricing, and behavior of, participants in the DRAM
18 market during this period is currently the subject of a price-fixing investigation by the Antitrust
19 Division of the U.S. Department of Justice. Several of the Defendants named herein are either
20 currently the subject of the DRAM investigation, or have pleaded guilty to price-fixing charges
21 with respect to DRAM. Samsung, for example, was fined \$300 million by the United States in
22 October 2005 for participating in DRAM price-fixing. Samsung is also under investigation by
23 the DOJ (along with some of the other Defendants) for fixing the prices of SRAM. The agents
24 and employees of Samsung, Hynix, and Micron implicated in the DRAM price-fixing conspiracy
25 are the same agents and employees that are responsible for pricing SRAM and Flash Memory.
26 Samsung and Hynix have pled guilty to price-fixing in the DRAM market during the period from
27 1999 to 2002 and have paid substantial fines for those unlawful activities. Samsung has paid
28 \$300 million while Hynix has paid \$185 million. Micron was the amnesty applicant in the

1 DRAM price-fixing investigation. On April 20, 2007, it was reported that a sixth executive from
2 Samsung had pled guilty to conspiracy; as part of his plea agreement, the executive, Il Ung Kim,
3 will serve a 14 month sentence in a United States prison - "the longest imprisonment ever by a
4 foreign defendant charged with price fixing in the United States." Technews, 4-20-07
5 (<http://www.technologynewsdaily.com/node/6754>).

6 68. In October 2006, the DOJ sent subpoenas to approximately 23 companies,
7 including Samsung, Toshiba, Hynix, Renesas, and Micron, in connection with an investigation of
8 cartel activity in the SRAM industry. A DOJ spokesperson was quoted as saying: "[t]he U.S.
9 Department of Justice's antitrust division is conducting an investigation regarding anti-
10 competitive practices against chief SRAM manufacturers." DOJ's SRAM investigation concerns
11 anti-competitive conduct that was continuing at least as recently as 2005.

12 69. The Department of Justice has now turned to the Flash Memory market. In
13 September 2007, SanDisk, Toshiba America Electronic Components, Milpitas, and Samsung all
14 received DOJ subpoenas, and SanDisk CEO Eli Harari also received a grand jury subpoena.
15 These subpoenas were issued out of the U.S. District Court for the Northern District of
16 California.

17 70. On September 14, 2007, SanDisk admitted the following in an SEC Form 8-K:

18
19 This week the Company and its Chief Executive Officer received
20 grand jury subpoenas issued from the United States District Court for
21 the Northern District of California indicating a Department of Justice
22 investigation into possible antitrust violations in the NAND flash
23 memory industry. The Company also received a notice from the
24 Canadian Competition Bureau that the Bureau has commenced an
industry-wide investigation with respect to alleged anti-competitive
activity regarding the conduct of companies engaged in the supply of
NAND flash memory chips to Canada and requesting that the
Company preserve any records relevant to such investigation.

25 71. John Pecman, an assistant deputy commissioner in the criminal matters branch of
26 the Canadian Competition Bureau, has confirmed that the Bureau has "sent target letters to a
27 number of industry participants."
28

1 **G. Anticompetitive Conduct**

2 72. Defendants, which includes their officers, directors, and employees, participated
3 in anticompetitive behavior that harmed businesses and consumers and violated standards of
4 ethical behavior by:

- 5 a. participating in meetings and conversations, including through various trade
6 associations and committees, to discuss the prices of Flash Memory in the
7 United States;
- 8 b. agreeing, during those meetings and conversations, to charge prices at
9 specified levels and otherwise to increase and maintain prices of Flash
10 Memory sold in the United States;
- 11 c. issuing price announcements and quotations in accordance with the
12 agreements reached; and selling Flash Memory to various customers in the
13 United States at non-competitive prices.

14 **IX. DEFENDANTS' CONCEALMENT OF THE CONSPIRACY**

15 73. Throughout and beyond the conspiracy, Defendants and their co-conspirators
16 affirmatively and actively concealed their unlawful conduct from Plaintiff. Defendants and their
17 co-conspirators conducted their conspiracy in secret and kept it mostly within the confines of
18 their higher-level executives. Defendants and their co-conspirators publicly provided pretextual
19 and false justifications regarding their price increases. Defendants and their co-conspirators
20 conducted their conspiracy in secret, concealed the true nature of their unlawful conduct and acts
21 in furtherance thereof, and actively concealed their activities through various other means and
22 methods to avoid detection. Plaintiff did not discover, and could not have discovered through
23 the exercise of reasonable diligence, that Defendants and their co-conspirators were violating the
24 antitrust laws as alleged herein until shortly before class action litigation was commenced.

25 74. As a result of the active concealment of the conspiracy by Defendants and their
26 co-conspirators, any and all applicable statutes of limitations otherwise applicable to the
27 allegations herein have been tolled.

X. VIOLATIONS ALLEGED

Count I

(Violation of Section 1 of the Sherman Act)

75. Plaintiff incorporates and realleges, as though fully set forth herein, each and every allegation set forth above.

76. Although the precise dates are not known to Plaintiff but are known to Defendants, Plaintiff alleges upon information and belief that from as early as January 1, 1999, and continuing at least through the present, Defendants and their co-conspirators entered into agreements, understandings, and a conspiracy in restraint of trade to artificially raise, fix, maintain, and/or stabilize prices for Flash Memory in the United States. These agreements, understandings, and conspiracy violate §1 of the Sherman Act, 15 U.S.C. §1.

77. Defendants' and their co-conspirators activities as alleged herein were within the flow of, were intended to, and did have a substantial effect on the foreign and interstate commerce of the United States.

78. In entering into and conducting the conspiracy as agreed, Defendants and their co-conspirators committed the acts they agreed to commit, including those specifically set forth herein and additional acts and conduct in furtherance of the conspiracy, with the specific goals and intent:

- a. of fixing, raising, and maintaining the price of Flash Memory;
- b. of allocating amongst themselves markets for Flash Memory;
- c. of submitting rigged bids in order to secure and carry out certain Flash Memory contracts; and
- d. of allocating amongst themselves the production of Flash Memory.

79. Among the effects of Defendants' and their co-conspirators acts have been:

- a. Restraint, suppression, and/or elimination of price competition in the sale of Flash Memory in the United States;

- b. The raising, fixing, maintenance, and stabilization of prices at artificially high and non-competitive levels for Flash Memory sold by Defendants and their co-conspirators in the United States; and
- c. The denial to consumers of Flash Memory products of the benefits of competition.

80. Plaintiff and the members of the Class have been injured and will continue to be injured in their business and property by paying more for Flash Memory purchased directly from Defendants and their co-conspirators than they would have paid and will pay in the absence of the combination and conspiracy.

81. Plaintiff and the Class are entitled to an injunction against Defendants, preventing and restraining the violations alleged herein.

XI. PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays:

A. That the Court determine that class treatment pursuant to Federal Rules of Civil Procedure 23(a), 23(b)(2), and 23(b)(3) is appropriate for the claims alleged herein under the Sherman Act;

B. That the Defendants, their affiliates, successors, transferees, assignees, and the officers, directors, partners, agents, and employees thereof, and all other persons acting or claiming to act on their behalf, be permanently enjoined and restrained from in any manner continuing, maintaining, or renewing the conduct, contract, trust, understanding, conspiracy, or combination alleged herein, or from entering into any other conduct, contract, trust, understanding, conspiracy, or combination having a similar purpose or effect, and from adopting or following any practice, plan, program, or device having a similar purpose or effect;

C. That the unlawful conduct, contract, conspiracy or combination alleged herein be adjudged and decreed to be a restraint of trade or commerce in violation of § 1 of the Sherman Act;

D. That Plaintiff and the Class recover damages, as available under the law, and that a judgment be entered in favor of Plaintiff and the Class jointly and severally against Defendants in an amount to be trebled in accordance with applicable laws;

E. That Plaintiff and members of the Class be awarded pre- and post judgment interest from and after the date of service of the initial complaint in this action;

F. That Plaintiff and members of the Class recover their costs of this suit, including reasonable attorneys' fees as provided by law; and

G. That Plaintiff and members of the Class receive such other and further relief as the nature of the case may require or as the Court deems just, equitable, and proper.

XII. DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Plaintiff demands a trial by jury for all issues so triable.

WEXLER TORISEVA WALLACE LLP

Dated: September 28, 2007

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